



This light and airy conveyor belt floor is in the Western Stevedoring Company's lake elevator, Erie Pa.

# Grain

JUNE 1950

THE MAGAZINE OF PLANT MANAGEMENT AND OPERATION

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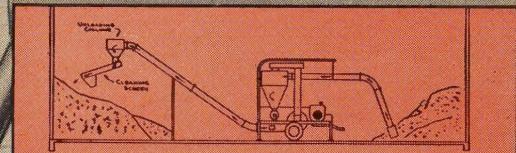
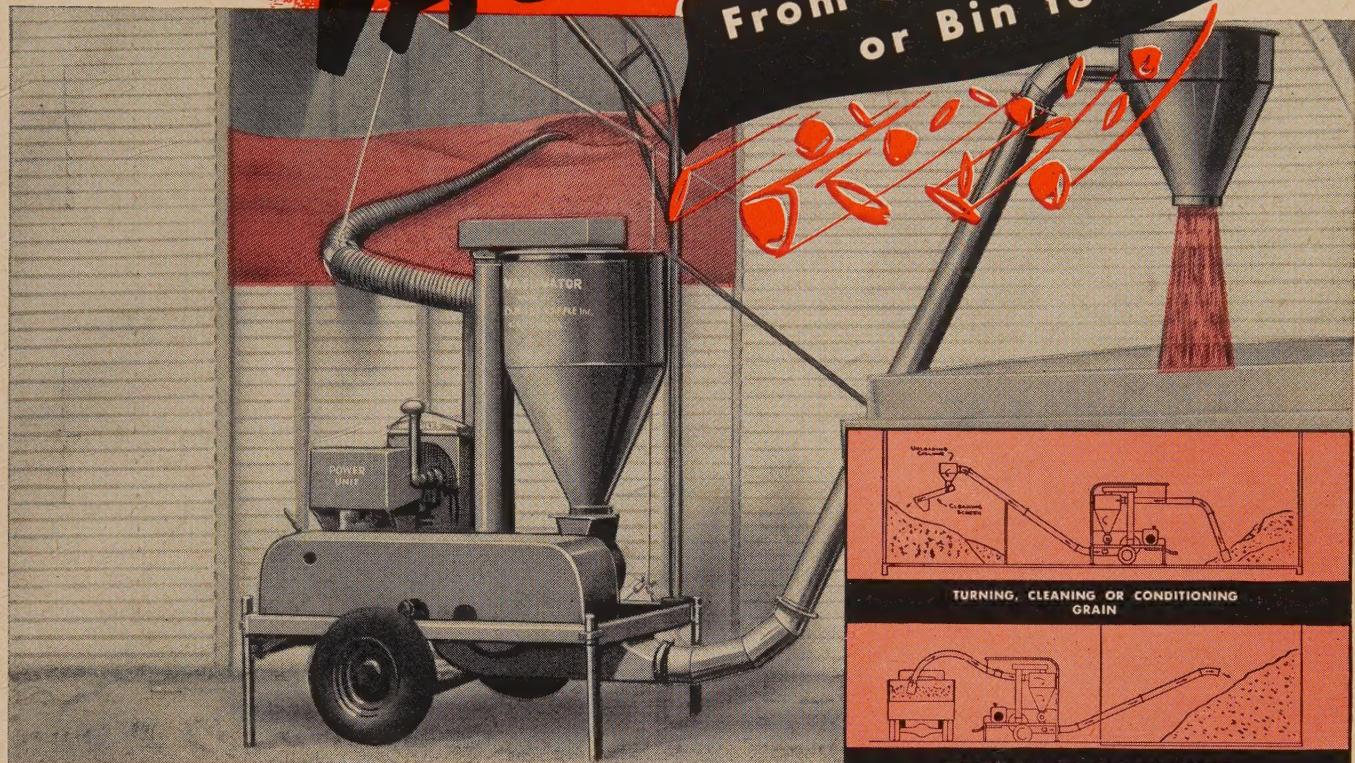
FOR CLEAN AIR... THE INVISIBLE TOOL

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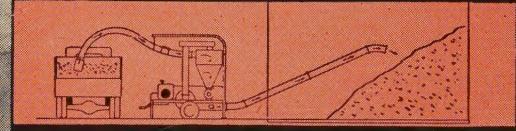
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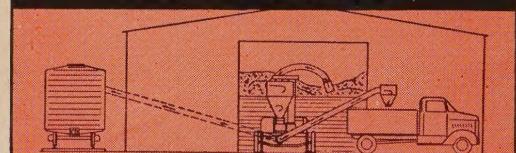
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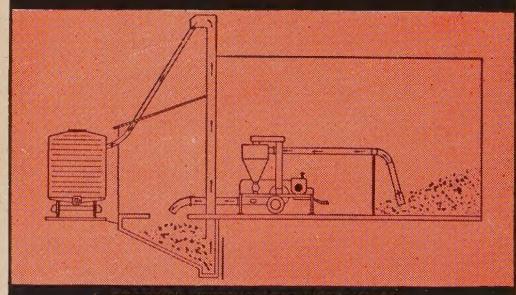
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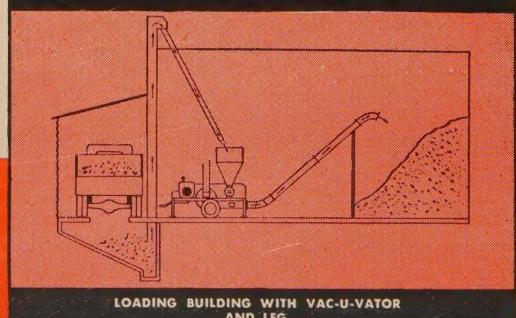
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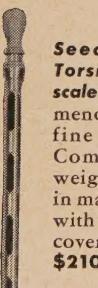
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# Mold Studies Now in Progress

## May Reduce SICK GRAIN Loss

FOR THE PAST 6 years, Dr. Clyde M. Christensen, Professor of Plant Pathology at the University of Minnesota, has been engaged in a thorough study of the molds in grain. He told members of the Minneapolis SOGES Chapter at a meeting on June 6 about the work so far done and the conclusions that can be drawn.

Members were encouraged to believe that one of their main problems—sick grain—would be partially solved in the not distant future. However, the use of chemicals to control deterioration of grain in storage was considered only a remote possibility.

"We have tried more than 100 different chemicals in an effort to control molds on moist stored grain," he said. "Very few have been effective for more than a few days. Those that were effective were so poisonous that they could not be used on any grain intended for food or feed."

### All Grain is Moldy

Dr. Christensen made clear that all grain is moldy. Grain may appear to be mold-free to the naked eye but laboratory tests reveal that all grain has mold both on its surface and in it.

Some lots of grain are moldier than others. Some of the molds present in grains will grow at relatively low moisture content. In wheat, for instance, this level is usually 15 to 16%.

When molds begin to grow, they kill the germ and make sick grain. They cause wheat and other grains to heat and also cause various other kinds of chemical spoilage in grain.

The more moisture there is in grain, the more rapidly the molds will grow, Dr. Christensen explained. The more quickly the molds grow, the more quickly they will kill the germ of the grain.

### Kills Without Heating

Contrary to belief of most elevator superintendents, molds can kill grain and cause it to spoil without the grain heating. This condition depends upon how fast the mold grows and how well the grain happens to be insulated in storage. It also depends on how much air is circulating through the grain.

If, for instance, a volume of a cubic yard of moist grain happens to lie next to a cold bin wall, the heat developed by growth of mold will be dissipated by the cold wall. Yet the growth of this mold will kill the germ

just as effectively as if the heat were not dissipated. If the moist grain happens to be located in a part of the bin where air is circulating through it readily, it may mold without heating. Again the wheat germ will be killed despite the apparent absence of heating.

One way to determine if the grain germ is being damaged by mold growth is to put the grain on moist toweling and keep it there for 3 or 4 days at normal room temperature of about 70° F. In that period of time grain will germinate if the germ has not been damaged by mold; the stalk will come out of one end of the germ and the roots from the other. Under controlled laboratory testing this can be determined in 24 hrs.

The only way to keep grain sufficiently dry so that the molds cannot grow would be to keep it below 14% moisture content.

This means 14% for each kernel in the bin, not the average moisture content. Dr. Christensen believes there is no way to achieve moisture reduction in all of the grain at present and this is the underlying reason for storage problems.

### Reasons for Heating

Grain which apparently has a safe moisture content can heat for two reasons:

1. The moisture content isn't as low as the elevator operator is led to believe from his test samples. Some grain in the lot is higher in moisture than indicated by the tests. What happened was that the farmer had dumped his load, the elevator operator took his samples and found none ran above 14%. Therefore he assumed everything was safe. Actually there may have been a few bushels which were above the safe margin.

2. Even though all grain has a safe moisture content to begin with, the water becomes unequally distributed in storage. This develops as a result of differences in temperature and differences in bulk. The moisture tends to move from the place of higher temperature to the place of lower temperature. In the winter it would tend to move to the outside or to the top of the bin. In the summer it would tend to move toward the interior of the bin.

At a point 5½ ft. inward, the temperature is three months behind the wall temperature of the bin. At

a distance 11 ft. inward, it is 6 months behind. Thus if it is 20° below zero outside in February, the center of the bulk may still have the temperature of 50° above zero in which it was stored in October.

### Spring Changes Dangerous

In the spring, there are often rapid fluctuations in temperature in stored grain as a result of rapid changes outside. This is the time of the year when it is likely that accumulation of moisture may occur near the outside of the bulk of stored grain.

Another danger is that there may have been a redistribution of moisture during the winter in the bulk of the grain due to the differences in temperature in different portions of the bulk during the winter months. Thus, when weather warms up in the spring, molds may begin to grow in those areas of higher moisture. They may not have grown during the winter because temperatures remained too low.

### Mold Can Fool Experts

Most molds will grow slowly in temperatures as low as 20° F. At 70°, mold may grow 50 times as swiftly as at 20°.

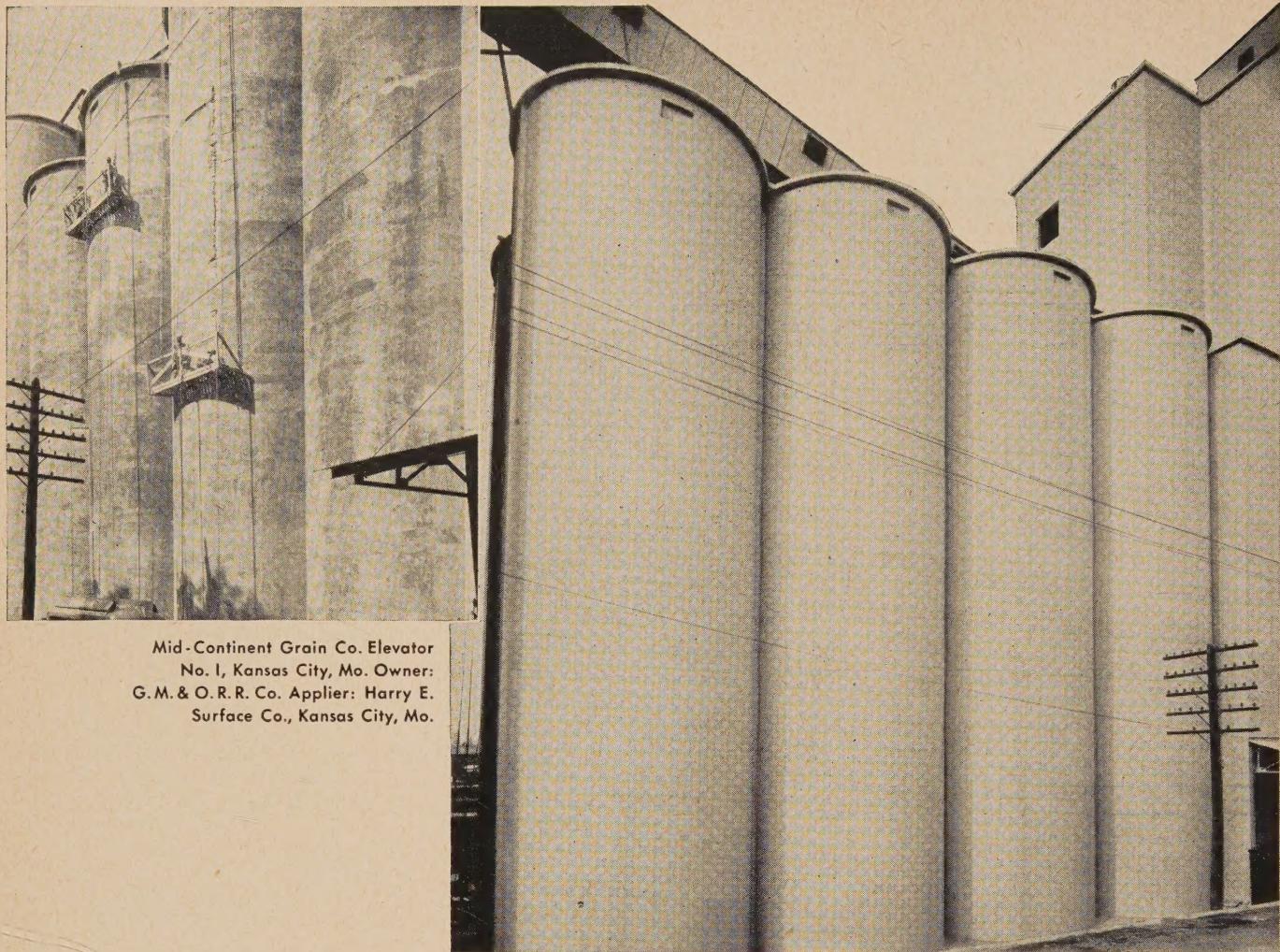
Customarily protection against sick or moldy grain is to dry the grain, then keep it uniform in moisture by turning it from one bin to another. When moist grain and dry grain are mixed, the water or moisture will become uniformly distributed very rapidly. However, this precaution is not always a guarantee that mold will not grow.

### Mold Not Apparent to Eye

One malting firm in the Minneapolis-St. Paul area last spring lost \$36,000 on malting barely which became moldy despite full precautionary shifting of grain from bin to bin.

In addition to constant turning, the elevator manager ran germination tests (malting barley must have high germination rating) and discovered viability was dropping. He asked the University of Minnesota Plant Pathology Dept. to conduct tests to determine the reason why germination was being affected.

Mold was the answer. It was not apparent to the naked eye, neither to the expert barley man nor to the experienced plant pathologist. Grain has to be exceptionally moldy before



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the mold is evident to the naked eye or detectable by smell.

#### Tests Show the Unsuspected

The process for determining potential mold growth in a kernel of wheat in the laboratory is to grind it up, suspend it in a gelatin medium in enclosed dishes and let it stand for a week. The number and the different kinds of molds that grow out reveal the proportion and quantity of molds present inside the grain.

This procedure emphasizes that grain which "appears" to be mold-free actually may be loaded with mold which is waiting to grow under proper moisture and temperature conditions. In the case of one sample of corn which was believed to be mold-free, tests showed ten million penicillium-type and other storage-type molds per pound.

If grain is maintained at moisture content where mold can just barely develop, the killing process is a gradual one. It is impossible to set an arbitrary limit and determine that in one place it is sound and in another it is sick.

#### Acid Condition Lowers Quality

The more acid the condition of the grain becomes, the lower is its quality. Mold action is what converts the oil in the grain germ into fatty acids which make the grain rancid. Technically, these fatty acids are the rancidity just as they are in rancid butter.

It is reasonable to believe that some day the process of grain storage will be changed. Grain found storable as a result of mold test findings will be transferred from "quarantine" bins to an elevator where grain drying and turning will keep moisture content regulated.

On the other hand, grain found to have high mold characteristics will then be marked for immediate shipment. A marking such as "High mold—move to processor within 60 days," would speed non-storable grain into processing channels.

# What STANDARDIZATION Means

THE term "standardization" has, no doubt, a well-defined meaning to many people, in the sense that to standardize is to make alike those things which have the same purpose or function.

The aesthete may have a feeling of revulsion at the sight of the word, as suggesting a change from refreshing variety to drab similarity. Others may consider that it stultifies development, and even hinders progress. Others, again, look upon it as some recent discovery of the politicians. Let us therefore look back through the ages and see if we can identify it in some form.

#### Speech Is Standard

Surely the reason that you and I understand each other at all is because we agree to use an accepted code or standard form of speech and writing. Here, then, must be one of the oldest, if not the oldest, type of standard ever devised.

If this not convincing enough to those who imagine that standardization is a modern innovation, it may be pointed out that there exists a record of a survey of land inscribed on a tablet from Ur, circa 2200 B.C. Hence, some standard of measure must have been in use at that time.

Gold coinage was introduced by the Romans and was readily accepted by countries outside the empire as a standard of value in exchange for merchandise or labor.

The calendar is credited to Julius Caesar, but in Japan the years are reckoned from 660 B.C. (e.g., 1949 is shown as 2609), so that the Japanese may have devised some system of recording dates before even the Romans did so.

The Romans also unified or stand-

ardized the legal system which formed the basis of codes of law in use in many countries today.

#### Progress Follows Standards

Between these ancient times and the commencement of the industrial revolution in England, a number of other standards were developed. One of the most important concerned the measurement of time, in conjunction with the development of clocks, and involved the division of the day into hours, minutes, and seconds.

In another sphere was the ordinance of Charles I, dated 1631, standardizing armor, guns, pikes, and bandoliers. In the same period standards of doubtful usefulness were being created by fashion or for the sake of convenience.

Sometimes the fear of ridicule resulted in the creation of a standard: The three-piece suite of furniture, the trouser turn-up, and the inevitable masculine hat-band, with its bow on the left, are recent cases of this trend.

Other examples come readily to mind, and help to set the stage for more modern times.

#### Steel Sections Reduced

It was some 40 years ago that the interest of the technical institutions was aroused in connection with the great variety of steel sections and sizes which existed. This led to the formation of the Engineering Standards Committee, which successfully reduced this unnecessarily large number of steel sections to a rational figure.

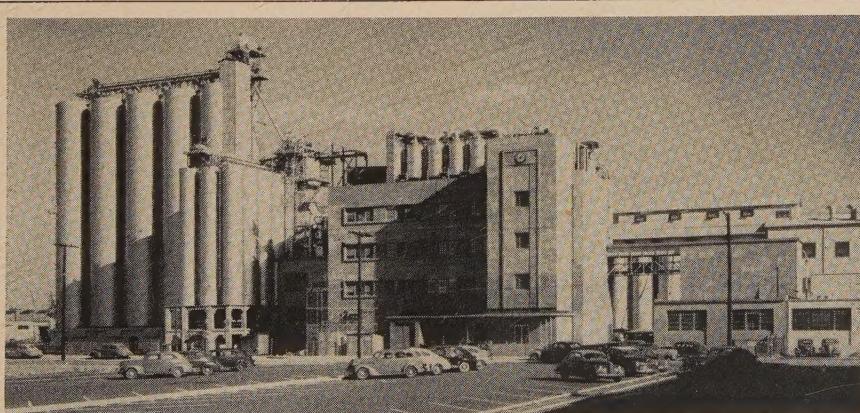
The work of this committee was so well received that it was invited to give its attention to other items in the engineering industry. Some time later it was agreed that the scope of this committee should be widened to include work other than that of an engineering nature, and as a result, the British Standards Institution came into existence.

Progress in other countries has followed a broadly similar pattern, and so, having brought this review up-to-date, we are in a better position to attempt to define our subject.

Briefly, a standard is a means either of giving effect to an agreed practice or of guiding progress along agreed paths. It may either take some physical form (e.g., the national yard as a measure of length), or be a statement containing the most up-to-date and proven knowledge needed to enable the agreed practice to be followed.

In the engineering field, there are four main types of standard:

(a) Those which lay down codes



Most striking thing about this new General Mills plant at Los Angeles, Calif. is the unique design of the elevator. Roofless, steel storage bins and headhouses have replaced the conventional concrete structures. The sealed, weather-proof distributing conveyors above the storage bins are out in the open. The slide gates in the distributing system are hydraulically controlled and the system is interlocked. An inert gas displaces the air in the stored grain. As grain is drawn out of a tank, a pressure control system detects it and diverts the proper amount of gas to that bin, thus maintaining the specified pressure. The possibility of a dust explosion with this type of set-up is very remote, safety engineers believe.



Leslie Irwin at his desk in Searle Terminal, Fort William



Fig. 1

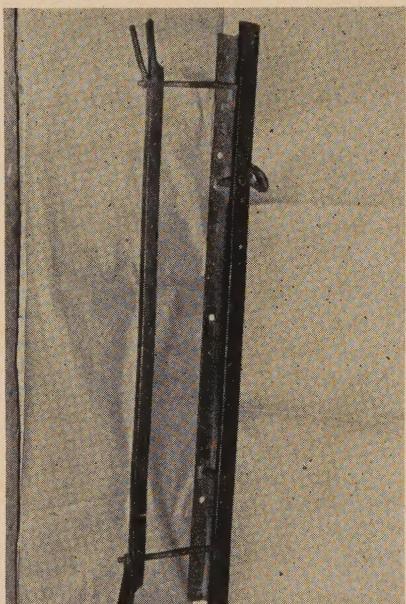
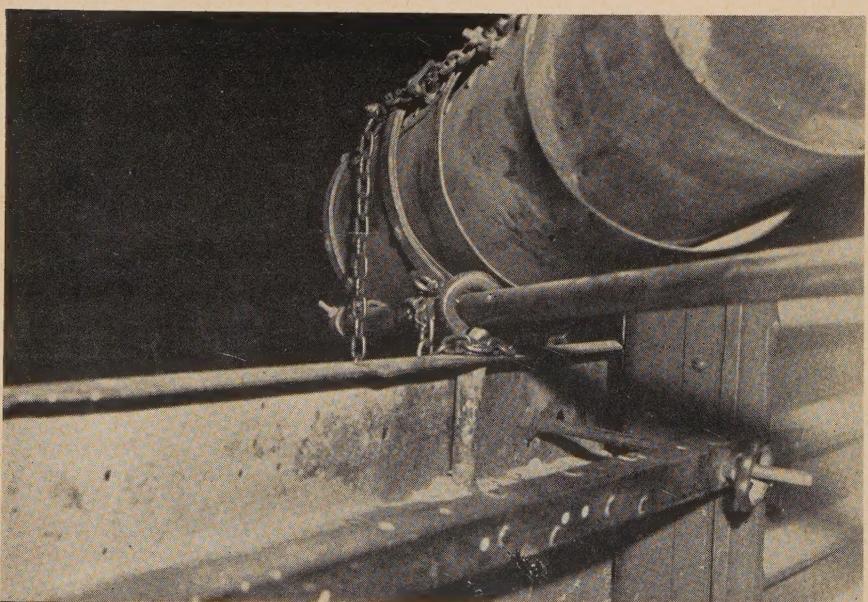


Fig. 2



of practice for the manufacture of particular products, or for their testing or use.

(b) Those which lay down the quality of material or the performance required from manufactured products, and which often specify tests which the materials or manufactured articles must pass.

(c) Those which lay down standard dimensions. These may specify ranges of size or the overall dimensions of components, sub-assemblies, or complete equipments, and thus ensure that the products of different manufacturers are interchangeable as regards physical dimensions.

(d) Those which define terminology, with a view to securing accuracy of description of articles or processes.

#### Definitions

In conclusion, we quote the following definitions, which appear in "The Concise Oxford Dictionary":

*Standard*, n.—Weight or measure to which others conform or by which the accuracy of others is judged; degree of excellence, etc., required for particular purpose; thing recognized as model for imitation.

*Standardize*, v.t.—Make to conform to standard; (chem.) obtain by analysis specific value of (solution, etc.) for purpose of comparison. Hence *standardization*, n.—From a discussion appearing in a new magazine on *Land Standardization issued by the ministry of supply, London, England*.

#### INGENIOUS FLEXIBLE SPOUT HOLDER

DOWN in old New Orleans, at the SOGES Convention there was usually an interested little crowd about Leslie Irwin, Superintendent of Searle Terminal, Ltd., Fort William, Ont. Chances are he was telling them some of his ideas of operation or explaining some of the clever devices he's originated.

Among the latter, perhaps his holder for flexible spout drew the most attention. We persuaded him to have some pictures taken for GRAIN. He not only promised, but kept his word and here they are. Thank you, Les, very much!

Fig. 1 shows the flexible spout holder actually installed in doorway of boxcar. The holder is kept in place by angle irons and two clamp bolts with wing nuts.

These features are shown more clearly in Fig. 2, where the spout holder rests on the ground, but is put together for the picture.

The channel iron fits inside door posts and angle iron outside door posts. The wing nuts are tightened up to keep channel iron from moving. Spout holder bar operates through the eyebolt. The latter turns first to one end of the car and then to the other through sleeve welded in channel iron for this purpose.

Fig. 3 shows grain flowing through spout into car at the rate of 500 bus. per minute. Spout sections are made of and lined with No. 10 gauge iron.

The spout is raised and lowered with chain pulls the same as the regular bifurcated spouts.

WARD STANLEY  
Kansas City, Mo.



# THE PRESIDENT'S CORNER

THERE is such a conglomeration of ideas and plans being advocated, proposed and practiced in the country today that the average American is in befuddlement and bewilderment all the time. That is, unless he is realistic enough to get his "mental feet" on solid ground of reason and commonsense.

Your president was born and reared on a farm and in a farm family, none of whom ever thought that it was anybody else's duty to provide for his support and maintenance. These "flying saucers" of plans for "security" would keep him in a state of constant jitters about the welfare of himself and his, were it not for the ability to turn back to those basic and sound principles on which his earlier life was founded.

## The Right Kind of Fear

My parents subdued a portion of the raw prairie of central Kansas, established and founded a farm home, reared a large family of children, sent them to school and taught them fear. We were taught to be afraid of lies and deceit; afraid of laziness and slothfulness; afraid of impecuniosity and indigence; afraid of immorality and corruption; afraid of disobedience to the law and of disloyalty to our country, and we were taught the fear of God.

We were taught that it was our duty in life to first provide for ourselves, second, it was our solemn duty to provide for all those for whom we were legally and morally responsible. Third, it was our duty as fully as possible to aid any who were unable to provide for themselves.

We never heard of this so-called "security" or of any notion that the government or anyone else owed us security. We were told the exact opposite—that it was our duty to provide for our own security; to toil, save and hold up our heads and be free—free to order our own lives within the rules and regulations. The latter were then so plain and commonsensical and simple that people were not daily violating the law and rendering themselves subject to a "fine of \$10,000 and a year in jail" for doing or failing to do this or that.

Few farms were less than 160 acres and some were much more. The man who knew his soil and the climate and owned the land decided what to plant on the N.W. 40 or any part of his farm; he knew what crops he wished to raise and in what manner he wished to rotate those crops and raise his livestock. He knew whether he wanted to raise stockers or feeders; whether he wanted to fatten on the farm or market for others to fatten.

## When Farming Was Free Enterprise

He did not look to government—and some starry-eyed egotist—who didn't know a long whiskered goat from a Brahma bull—to tell him how much he could plant of this or that crop, and how and when he should market what he raised; how many cattle or hogs or other livestock he should endeavor to raise.

However, this starry-eyed dreamer and his cohorts came on and had a "plan." The "plan" is to pay to the farmer a "parity price" or at least assure him that for his products—by letting—mind you by *letting* the farmer market his products (if these products were produced under the regulations, reduction of acreage and other limitations set forth by these starry-eyed visionaries, and all requirements met) on the open market at current prices. Then for every penny that price fell below parity, the government would pay the farmer the difference in cash.

Of course anyone with ordinary sense knows that, so far as cash money goes, any government is a pauper. Government only has such cash as it can collect from the people. This cash that is paid to the farmer who complies with the "plan" (Brennan plan) gets some of this cash collected from the taxpayers (and he himself gets a chance to pay some of it).

## The Case of Two Farmers

Two old farmer friends reside side by side on farms of equal acreage and as nearly alike in fertility and productivity as can well be.

The first one was reared with the principles of independence, a high sense of duty and a belief in his own ability to do and achieve. He feared poverty. He was proud and

determined. He had too much of that element we call character to allow any "bright boy" to tell him how to run his business and his farm.

The second farmer dreamed of "security." He wanted "freedom from fear." He was looking for help. He was willing to reap where he had not sown. He joined the "plan," so then planted less, toiled less and reaped less, and when he marketed his crops and got his market price and his parity, he jingled coins in his pocket that had a peculiar ring to them.

Among them were tax dollars from all—tax dollars to supply parity—and with all of it he had followed the example of Esau, and ultimately is bound to share a similar fate.

"The power to tax is the power to destroy," and no power, even though it be that power which money gives those creatures, money which they have forced from the people, ever supports for long that which it does not dominate and control, and the people who are free and have their feet on the ground and think, know that the "plan" now proposed is but the sale of a birth-right for a mess of pottage; that the principle of the old story of the camel who first wanted his head in the tent—and finally appropriated the whole tent—is applicable.

Give to a "do gooder," a "social uplifter," an inflated egotist the least start toward achieving his "dream," and you are well on the road to lose more than your shirt.

Is anyone foolish enough to think Huey Long, Tom Pendergast, Al Capone, Frank Costello, Mickey Cohen, or any of their ilk, came to power by one fell stroke or in a day?

## Change in Popular Sayings

One seldom hears such as "honesty is the best policy," "my country right or wrong, but my country," "take care of the pennies, the nickels and the dimes and the dollars will take care of themselves," "early to bed and early to rise makes a man healthy, wealthy and wise," and countless other old homilies, all of which are to character building what bricks are to walls.

Instead we hear "I want security," "security from the cradle to the grave," "pensions," "retirement at a given age," without once looking forward to these things and planning and providing for them and helping by contributing to accumulations for that purpose. All of these things are to be desired and are to be *earned*, and are not and never were a function of government. True, more votes may be obtained by advocating these plans and schemes, but the people are not benefited by them.

It would be a relief to see someone in authority advocating saving and thrift instead of "57 Varieties"



Group of elevator superintendents in front of the office of The Public Grain Elevator, New Orleans, at the time of the 1950 SOGES meeting. Picture was taken by Felix M. Schwandner Supt., Evans Elev. Co., Champaign, Ill.

of how to borrow money. True again, more votes may be obtained by the "57 Varieties" route than by honest, straightforward statement of basic fact.

Our people are being stratified--divided into classes--the farm bloc--the labor bloc--the industrial bloc, and so forth, when we are and should be all Americans.

Our country was founded on basic principles. These basic principles do not change. We may stray away from them but they remain the same. The eternal principle that the human family must always toil and strive, must always face the front, must always be self reliant, courageous and alert, and have a feeling and a knowledge that it can achieve and survive, is the basic thought of all right Americans.

If the farmers of this great Central West face the facts and apply the principles of life to their situation, before long the "brilliantines" who feel capable of rewriting the Lord's Prayer and the Golden Rule will cease to devise "plans" for their salvation and for their votes.

#### NEW SOGES MEMBERS

Jack Kitching, Supt., GLF elevator, Buffalo has secured two new members for SOGES. They are S. E. Collins, Huntley Mfg. Co., Brocton, N. Y., and Edwin George Houk, Co-op. Eastern States Farmers Exchange, Monroeville, Ohio.

#### OUT-OF-TOWN VISITORS

Tom L. Burrell, Tom L. Burrell, Inc., Indianapolis.

James Auld, Hales & Hunter Co., Minneapolis.

Hy H. Arendall, Innis, Speiden & Co., Omaha, Nebr.

#### McGLASSON WORKING ON PACIFIC COAST CHAPTER

Lee McGlasson, Elev. Superintendent, Fisher Flouring Mills Co., Seattle, Wash., is doing valiant work securing new SOGES members in the Pacific Coast area with the idea of forming a chapter there. An organization meeting is planned for October this year with national officers attending.

#### SOGES CHAPTERS AND DATES

1st TUESDAY—Minnesota SOGES Chapter. Ernest O. Ohman, Osborne-McMillan Elevator Co., Minneapolis, President; Robert Ranney, Ralston-Purina Co., Minneapolis, Vice-President; James Auld, Hales & Hunter Co., St. Louis Park, Secretary.

2nd TUESDAY—Omaha-Council Bluffs SOGES Chapter. Vincent Blum, Omaha Elevator Co., President; W. S. Pool, Nebraska-Iowa Elevator, Omaha, Vice-President; Franak Guinane, Interstate Grain Corporation, Council Bluffs, Secretary.

2nd FRIDAY—Central States SOGES Chapter. M. M. Darling, The Glidden Co., Indianapolis, President; N. R. Adkins, Ralston Purina Co., Lafayette, Secretary.

3rd TUESDAY—Kansas City SOGES Chapter. Andy J. Olson, Cargill, Inc., Kansas City, Mo., President; Robert T. Congrove, Standard Milling Co., Kansas City, Mo., First Vice-Pres.; L. C. Smith, Machinery & Supply Co., Kansas City, Mo., Second Vice-Pres.; R. K. Krebs, Norris Grain Co., Kansas City, Mo., Secretary-Treasurer.

3rd TUESDAY—Chicago SOGES Chapter. Lincoln Scott, Corn Products Refining Co., Chicago, President; Harry Hanson, Glidden Co., Chicago, Vice-President; Dale E. Wilson, Northwestern Malt & Grain Co., Chicago, Secretary.

3rd THURSDAY—Buffalo SOGES Chapter. Cornelius Halsted, General Mills, Inc., Buffalo, President; James Burns, Pillsbury Mills, Inc., Buffalo, Secretary.

#### JOINT MEETING AT INDIANAPOLIS

The Chicago and Indianapolis SOGES chapters held a joint meeting at Indianapolis on May 19, taking advantage of the opportunity to inspect the new Glidden 250-ton soybean extraction unit with 1,500,000 bu. elevator. "Mac" Darling presided over the session.

#### CORRECTIONS — SAFETY CONTEST 1ST QUARTER RESULTS

Code No.	Man Hours Worked	No. of Lost Time Accidents	No. of Lost Time Days	Frequency Rate	Severity Rate
C-23	118,104	4	21	33.8	0.10
G-2	191,712	1	4	35.3	0.02
X-99	17,898	1	15	55.9	0.80
K-26	108,659	2	19	18.5	0.17
F-20	48,486	5	59	102.5	1.21
G-105	65,922	1	2	15.4	0.03

These were incorrectly reported in the May issue.

# ON THE SAFETY FRONT

Conducted By  
CLARENCE W. TURNING, SOGES Safety Director

## SAFETY OBSERVATIONS

By Herbert A. Straley

**S**AFETY meetings should be conducted regularly once a month. They should be attended by men alternately selected as safety monitors. At these meetings, current accidents occurring at the plant should be discussed together with some outstanding incidents at other plants.

The monitors bring up any hazards they have found during inspections and these are discussed for merits. In practically all instances, the hazards will be eliminated.

On occasions, sound motion pictures having an educational value from a safety standpoint should be shown. Subjects covered are safe methods of lifting and handling materials; proper inspection and use of ladders; care of working tools; necessity of wearing proper work clothes; the use of protective equipment as provided and health habits are stressed.



Herbert A. Straley,  
Supt., The Port of  
New York Authority  
Terminal Elevator.

The importance of bringing unsafe working conditions to the foreman's attention; receiving prompt first aid if injured and the preparation of necessary accident reports are emphasized.

These meetings generally should last 45 minutes. All of these gatherings should be conducted in a manner to impress upon the minds of the employees the part that everyone plays in the prevention and reduction of accidents and reassures them of the management's sincere interest in their welfare.

## Tools

A surprising number of accidents occur in the use or misuse of hand tools. We do not permit the use of defective tools or the abuse of good tools. If you have a defective tool, take it to your foreman — do not use it.

Improper use of hand tools, neglect-

ing to keep them in good condition, or leaving them lie around are the causes of frequent injuries. Return them to proper places.

1. Hammers — with cracked, loose or burred heads — loose or splintered handles.
2. Chisels — watch out for mushroomed heads — broken edges.
3. Files — all files should be provided with a handle — the sharp tip can cause a serious wound.
4. Screw drivers — most commonly used tool — is responsible for many injuries. Rough handles — split handles — cause blisters and infections. Avoid holding screw drivers in one hand and the material to be worked in the other — hold work on bench.
5. Portable extension lights — must never be used without a proper guard. Look it over for frayed cords and defective parts.

## Ladders

1. Be sure of the ladder you use — look it over. Be sure that it is free from defects, especially cracked or broken rungs, split siderails, loose or worn hardware, splinters, etc.
2. Do not overreach from a ladder. You may lose your balance and fall. Get down and move the ladder.
3. Tools or testing equipment shall not be left on a ladder — they are apt to fall and hurt someone. We have just such a case in our files; an employee left a scraper on the step and when he moved the ladder he was struck across the bridge of his nose causing a fracture resulting in 14 days lost time.
4. Never fool when climbing a ladder — always face the ladder when ascending or descending.
5. Never place a ladder in front of a closed door — have someone guard the ladder and the door.
6. Never stand on the top step of a stepladder — and be sure that the ladder is fully opened and the spreader locked before using it.
7. When placing a straight ladder, place it at the proper angle. The distance away from the wall or object it is leaning against should be about 1/4 of its height. A 16-ft. ladder would be approximately 4 ft. from the wall at the base. Always have someone hold the ladder, or properly secure it by rope.

## Lifting

In spite of the many labor-saving devices that have been invented to save our backs, it is still necessary to use our strength to pick up some objects. Most of us, without thinking, lean over the conventional way — grasp the article and give a heave.

We use the muscles of our back and abdomen and quite frequently



From National Safety News  
Published by  
The National Safety Council



**AFTER**

This beautiful completed job of restoration is a typical example of B. J. Many Co. work. All disintegrated concrete has been chipped out, cavities filled with Gunite reinforced with mesh anchor bolted in place. The overall protective coating was then applied in four thick applications — it remains flexible.



**BEFORE**

This shows how the same elevator appeared before the Many specialists began the job. Moisture has deteriorated the facing, exposing steel to further rust which spalled off more and more of the original concrete.

# To **SUPERINTEND** the **Constructive** P and the **Explosive**

**C**ONSTRUCTION costs today make imperative a policy of **STRUCTURAL MAINTENANCE** and **WEATHER PROTECTION** that harnesses every scientific safeguard.

Moisture is the wrecker of grain elevators. All the works of man are eventually destroyed . . . only in desert areas is their survival time extended.

With concrete, deterioration is **caused** entirely by one thing — water . . . and water **results** in freezing and thawing, corrosion of the steel, excessive expansion and contraction, combination with destructive chemicals in the air to develop acids of decomposition, rust and other mineral oxidation. Grain elevators have the added stress and strain of varying loads which cause irregular cycles of expansion and contraction.

Rust has the almost explosive power of 230% expansion! Structural steel buildings and also reinforced concrete are subject to this irreparable destruction. These inevitable, relentless, inexorable forces must be met. Only by eliminating the **cause** — moisture — can the life of these structures be maintained for more than a few years.

The B. J. Many Company is known nationwide among companies with billions of dollars invested in great structures—grain elevators, railroads, bridges, tunnels, dams, factories, office and institutional buildings, for its skillful and thorough scientific methods of weather protection for concrete, steel, brick and other works.

## **B. J. MANY C**

Specialists in Brick and Concrete Restoration on

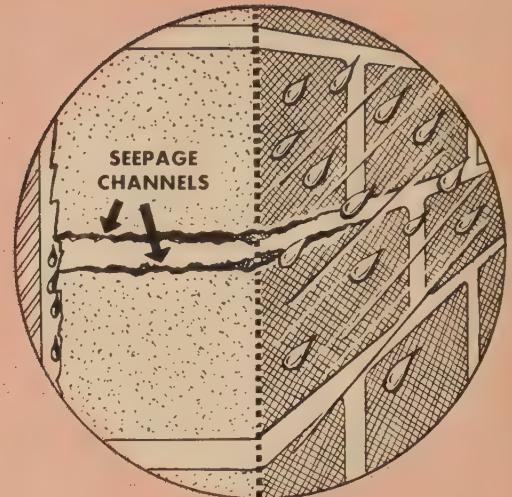
**30 North LaSalle Street**

# ENTS Who Know Power of Moisture Power of Rust...

One of the early engineers in the modern weather protection field, the B. J. Many Company, were among the first to recognize that concrete and mortar deterioration is caused by only one thing — water. The Many IN-FILTRO system is now recognized as the best practiced in concrete and mortar weather protection. Scientific laboratory tests by the Robert W. Hunt Co. show this method far superior to any other for masonry joints and repairs.

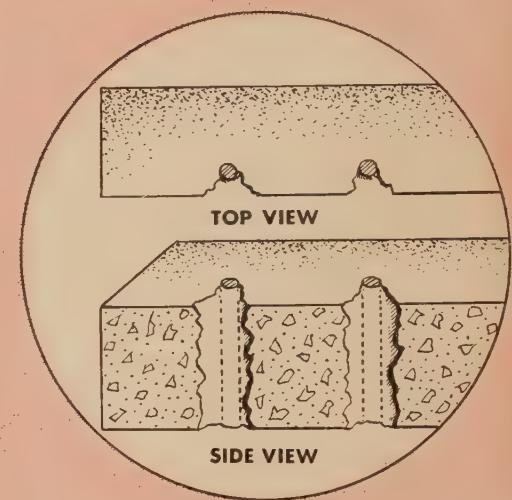
When the Many Company undertakes a job of protecting a gigantic grain elevator down to the tips of its foundation and up to the tops of its roof . . . its trained engineers not only go down and up but in — THOROUGHLY . . . All disintegrated concrete is chipped out. Cavities are filled with Gunite reinforced with mesh anchor bolted in place . . . a lasting job. Then comes the protective coating applied in four thick applications; it remains flexible.

• • •



**MORTAR JOINT**

Showing separation crack and seepage channels which allow moisture to penetrate to structural steel and cause irreparable damage



**CONCRETE**

Showing how reinforcing steel in unprotected concrete has rusted (230% expansion) and spalled off outer layers exposing steel to further deterioration and eventual irreparable damage and strength failure.



## AUTHORIZED AGENTS

Pioneer Sand & Gravel Company, Inc.  
901 Fairview Ave., N.  
Seattle 11, Washington

Northland Masonry Restoration Co., Ltd.  
Ft. William - Ontario - Canada  
203 Hardisty Street  
Toronto - Ontario - Canada  
Winnipeg - Manitoba - Canada  
733 Marion Street

O., Inc.  
ervation  
icago 2, Illinois

## OFFICES

West Long Branch, New Jersey — 409 Monmouth Rd.  
Baltimore 1, Maryland — 1100 Baltimore Life Bldg.  
Fort Wayne 2, Indiana — 817 Monroe Street  
Mobile 3, Alabama — 903-A First Nat'l Bank Bldg.  
Birmingham 3, Alabama — 503 North 20th Street  
New Orleans, Louisiana — 504 Delta Bldg.  
Charlotte 2, N. C. — K. R. Shupp, 310 Piedmont Bldg.  
Jacksonville, Fla. — George P. Coyle & Sons, 412 Park St.  
Oklahoma City, Okla. — Stewart Construction Co.,  
1357 S. W. 11th St.

we go to the hospital with a strain or hernia. We have a case in our files where an employee lifted a heavy jack into a vehicle, causing a hernia and resulting in a loss of 53 days. He should have had help. He did not use good judgment.

Here is the correct way to lift — crouch beside the article you want to pick up, secure a strong hold on it, then stand up, using the muscles of your legs and arms to bring up the weight. Of course, you will say you cannot lift as much when you use this method. That may be true, but you can't rupture yourself either. If you cannot lift it in this manner — get help.

### Goggles

Eye injuries form a large percentage of accidents. Protection of the eyes is not merely a matter of using goggles. The use of good judgment as to working position is equally important in preventing accidents to your eyes.

When you have an eye injury, report it at once. Do not let a layman fool with your eyes — see a doctor.

Safety requirements make it mandatory to wear goggles in the following operations.

Using emery or grinding wheels.

Welding or cutting.

Cutting or drilling stone, plaster, brick, concrete or other like materials.

Using air pressure while cleaning. When practical in spraying, chipping or scraping paint, or any other activity which creates or exposes an employee to eye injury due to working conditions.

Any discomfort due to the use of goggles is temporary. The loss of eyesight is permanent.

### Office Safety

Work in an office can be more dangerous than is commonly supposed:

1. Do not walk along reading correspondence or without looking where you are going. You may collide with somebody or something while rounding corners — you may bump into the edge of an open door or drawer.
2. Do not climb on chairs, desk drawers, boxes or other makeshift supports in order to reach for something. They are apt to slip or tip and cause you to fall.
3. Avoid leaving desk drawers or file case drawers open for someone to trip over.
4. Do not lean too far back in any chair — especially one of the tilting type.
5. Knives, scissors or paper-cutters must be handled with care.

### Files

Never use a file without a securely fitted handle. The unprotected tine can cause a painful and serious wound.

Never hit a file with a hammer, pieces of the hardened steel are likely to fly.

Files should be kept clean but never strike them against the vise or machine in order to remove the chips.

A wire file brush should be used to clean the chips from a file, a clean file cuts faster and is less likely to slip and cause an accident.

Use the correct pressure when filing.

Do not put too much pressure on file — this is apt to strip the file teeth, or even break the file — will cause a file to clog with material, after which it will rub rather than cut.

When the correct pressure is being used, a new file bites into the work more readily than an old one and should be used lightly after using for first time. Use a long steady uniform stroke, reduce the speed so that file does not slide.

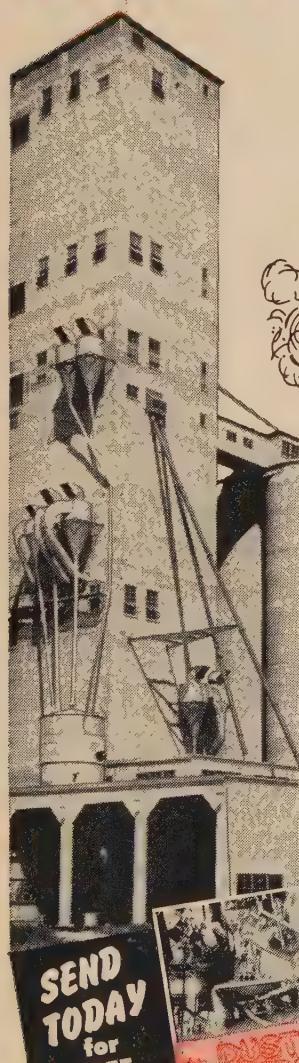
### Grinding Wheels

Always wear your goggles over your eyes when grinding.

Never attempt to make adjustments to rest while wheel is in motion, the rest may slip and strike wheel causing it to break.

Do not force work against cold wheel, but apply it gradually — give

## REMOVE "DUST DANGER"!



### CUT HOUSEKEEPING COSTS!

Dust costs you dollars . . . when you allow it to settle! Save those wasted dust-dollars with a Wiedenmann Dust Control System. Wiedenmann clears out the dust before it settles . . . keeps your plant cleaner, cuts your housekeeping costs down low. Wiedenmann Systems are TAILORMADE to master the dust problem in your plant.

Wiedenmann Dust Control Systems save you dollars many ways . . . cut explosion and fire risks, lower insurance costs . . . boost employee morale, cut accident risks . . . keep machinery running longer.

#### PROTECT YOUR INVESTMENT . . . GIVE YOUR PROFITS A BOOST

**Write Us Today for a FREE SURVEY!**

W. C. Wiedenmann & Son, Inc., Desk G-2  
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Send my FREE COPY of Wiedenmann's brochure on  
Dust Control Systems at once!

Check if you are considering requesting  
our Free Survey.

Firm Name \_\_\_\_\_

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City and State \_\_\_\_\_

Name and Position \_\_\_\_\_



**W.C. WIEDENMANN & SON, Inc.**

1820-24 HARRISON STREET • KANSAS CITY 8, MISSOURI

the wheel a chance to warm up — do not abuse the wheel by applying excessive pressure.

Grinding on the flat side of wheel is often hazardous, as this weakens the wheel and may cause it to break.

Be especially careful when grinding thin or narrow gauge metal — as friction tends to turn the edge of metal over and drag it and your hand into the wheel.

Jamming of tools between the wheel and work rest could fracture the wheel, causing it to break, resulting in serious injury to persons nearby.

Don't take a chance — carelessness means injury.

#### Hand Tools

Ordinarily the thought of danger is especially associated with power-driven machines. Although they do cause many accidents, it will be found that a surprisingly large proportion of injuries do occur in the use of hand tools.

Mishandling hand tools, neglecting to keep them in proper condition, and leaving them in dangerous places are frequent causes of accidents resulting in personal injuries.

There are many hand tools which, though belonging to the management, are in constant use by some skilled mechanics. A good workman takes as much pride and care of these tools as he would if they were his own personal property.

Hand tools should be frequently inspected and, if found defective, must be brought to the attention of your supervisor or foreman who will have them replaced or repaired.

Do not use tools with rough, splintered or badly worn handles, dull edges or mushroomed heads. Keep your tools clean and free from grease and oil.

In using knives, pliers and other cutting tools, avoid directing the strain toward yourself. If they should slip, you may be injured.

When using chisels, cold or bull chisels, the wearing of goggles is imperative. Flying pieces of steel or other material may cause serious eye strain.

Files should be provided with good handles and should never be used as a center punch, a pry or as a cold chisel. They are very brittle and are apt to break. You or someone nearby may be hit by the flying pieces.

There are many types of hammers, each fitted for a particular job. A machinist's hammer is not suitable for driving nails. Neither is a carpenter's hammer suitable for machinist's work. Never use a hammer with a cracked, burred or badly-worn head or handle. Be sure that the handle is securely fastened.

Wrenches should never be used as a hammer. Avoid using a pipe wrench with worn jaws. Stand to one side when pulling down on a wrench or chain tongs when they are

directly over your head. Place wrench on nut the right way — that is facing forward in the direction the handle is to move. When using a wrench be sure it fits the nut and is suitable for the job. Shims should not be used on a wrench too large or one with spread jaws.

The screw driver, one of the most commonly used tools, is responsible for many injuries, especially when used as a makeshift tool or other than its intended purpose.

Do not use a screw driver as a chisel or one with a loose or split handle, dull or rounded blade. A screw driver should not be used while you are in such a position that it would strike your face or

body, if it should slip. When working on small material, place the object on a flat surface — do not hold in your hands. A nasty wound may result if the screw driver slips.

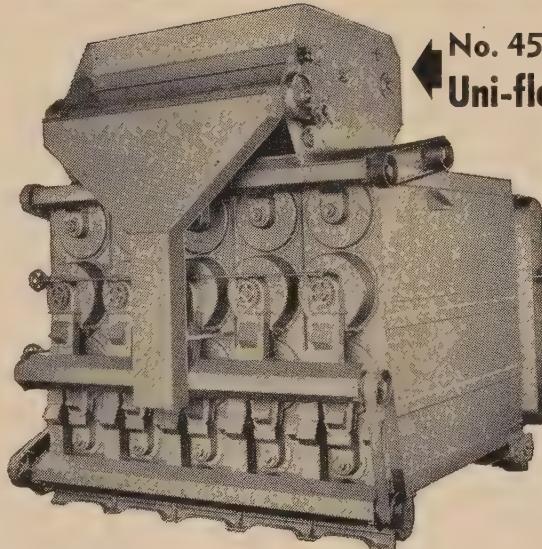
Remember it is your life, your health, your limbs and your family welfare. Be sure to have safe tools and equipment, first, last and always.

Only a very small percentage of accidents are caused by unusual causes. Most of them, by far, are from the same old unsafe practices.

#### DATING POSTERS

As every safetyman knows, regularity and frequency of poster changes are important factors in the effectiveness

## WIDE FLEXIBILITY in Cleaning at CAPACITIES to meet your needs



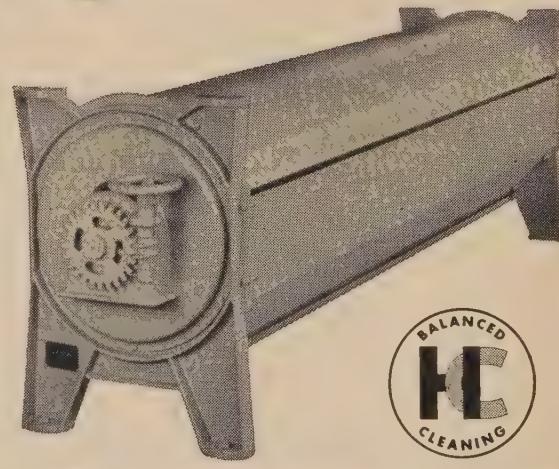
← No. 45 HART (All Cylinder)  
Uni-flow Grain SEPARATOR

In the all-cylinder cleaning field, this machine is well-known for big capacity and wide flexibility. The No. 45 is a complete cleaner, with scalping and aspirating included. It will clean by length wheat, durum, rye, barley, oats and similar grains. Only 10 H.P. is needed to deliver up to 2,000 bushels per hour of wheat. All-enclosed, the No. 45 is dustless, quiet in operation, vibrationless.

#### No. 11 HART

#### Uni-flow Grain SEPARATOR

The No. 11 features the basic Hart Uni-Flow cylinder unit, designed to operate singly or in multiple combination. Units may be joined together with split feed to provide maximum capacity, or they may be connected in series to provide two or more progressive separations from a single stream. The No. 11 operates efficiently on difficult mixtures. Ideal for crowded working space.



# HART-CARTER CO.

672 NINETEENTH AVENUE N. E. • MINNEAPOLIS, MINN.

ness of a poster program. To assure that posters are put up and taken down on a definite schedule one member suggests that the dates for posting and removal be inscribed on each poster when it is received by the safety department.—N.S.C.

## BETTER SAFETY RECORD LAST YEAR

American workers were a lot safer in 1949, the National Safety Council reports. Industrial injury rates for last year, released by the Council in advance of the 1950 edition of its annual statistical yearbook, "Accident Facts," show a substantial reduction

## SAFETY CONGRESS

Oct. 16 to 20

Food Section Headquarters  
Bungalow—Morrison Hotel  
Chicago

in both the frequency and severity of 1949 accidents as compared with 1948.

Thirty-eight of the 40 basic industry classifications reduced their frequency rates, and 28 reduced their severity rates.

The accident frequency rate for employees in all industries submitting company reports to the Council, based on the number of disabling injuries per 1,000,000 man-hours, was 10.14 in 1949 — a reduction of 12% from the year before.

The communications industry again led all other industries by turning in the lowest employee frequency rate. Its rate was 2.14 — an 18% reduction from 1948. Aircraft manufacturing again ranked second with 4.25, followed by the electrical equipment industry with 4.83 and steel with 4.96.

The accident severity rate for all industries reporting to the Council, based on the number of days lost per 1,000 man-hours, was 1.02 last year — a reduction of 9 per cent from 1948. The food industry (as a whole) had a severity rate of .90, a reduction of 11%.

## 1000-DAY SAFETY MARK AT COUNCIL BLUFFS

On the bulletin board of Archer-Daniels-Midland Elevator, Council Bluffs, Iowa a special marking was chalked up on May 17. It represented 1000 days — nearly 3 years — without a single lost-time accident.

The Council Bluffs elevator now has a big lead in the A-D-M safety contest. It is nearly 200 days ahead of the Minneapolis elevator, second on the list of 24 key plants over the country.

Russell Jolliff is safety chairman, and keeps up the record chart. Elevator superintendent is Charles F. Walker. He is quite proud that this elevator has won seven trophies and a plaque from the SOGES for safe operation.

## COLORS FOR WARNING SIGNS

An article in the Feb. 1950 "National Safety News", entitled "Reflecting and Luminescent Materials" reminds us, that there are certain colors designated for certain types of signs, and it may aid your safety campaign to bring yours into line, as noted below:

"The American Standard Specifications for Industrial Accident Prevention Signs specify RED for danger, YELLOW for caution, GREEN for safety, BLACK for directional signs, and any color except red or yellow for informational signs. Dark colors do not reflect as well as do light ones."

## 1200 WORDS EXPLAIN 21

Congress passed a law exempting employees in administrative, executive, retailing, and sales positions from the provision of the Wage-Hour Act. The law was 21 words long.

Then, according to Congressional sources, the Labor Department took the 21-word law and made up a set of regulations — which it wrote out in 1200 words!

# Kills GRANARY PESTS BETTER

When you use LARVACIDE, you get control plus! LARVACIDE not only handles granary weevil and rice weevil, but is also deadly to lesser grain borer, saw-toothed grain beetle, flat grain beetle, Mediterranean flour moth and grain mites. Easily applied when receiving or turning, LARVACIDE's kill includes egg-life and larvae. There's no explosion or fire hazard, and LARVACIDE's tear-gas warning cuts accident risk.

### KILLS AND REPELS RATS TOO!

LARVACIDE at low economical dosage drives them out on the open floor to die, where they may be swept up without carcass nuisance! Fast airing—overnight exposure. Continuous repellent action easily provided for with LARVACIDE.

INNIS, SPEIDEN & CO.

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BOSTON CINCINNATI OMAHA  
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E. S. BROWNING CO., INC.  
SAN FRANCISCO • LOS ANGELES

## IS COSPRAY SERVACIDE

Contact and fume sprays with LASTING KILLING POWER!

Use on bin tops and bin bottoms, when empty.

# Report of SOGES Committee on DUST EXPLOSION HAZARDS

DURING the past business year efforts have been devoted principally to the four main program items adopted for continuing attention at Indianapolis in 1948, and reported upon at the 1949 meeting in Minneapolis. These are:

## I. Static Electricity

Investigation with Lloyd C. Howe Technical Engineer, North American Companies, Toronto, as to conclusions that might have been reached based on an extended series of dust explosion tests, disclosed that no conclusive evidence could be had without additional investigation. He recommended that no material changes be made without full investigation of their relative merits, pending more definite findings, which might result from further research now under way.

## II. N.F.P.A. Dust Explosion Code

The Committee at Indianapolis voted to move toward desirable revisions in the National Fire Protection Association "Code for the Pre-

## Makeup of Committee

J. Bruce Winfield, Canadian Pac. Ry. Elev., Port McNicoll, Ont., chairman; C. E. Harbin, Underwriters Grain Assn., Chicago; H. L. Bowman, Geo. J. Meyer Malt & Grain Corp., Buffalo, N. Y.; E. O. Ohman, Osborn-McMillan Elev. Co., Minneapolis; E. A. Christie, Quaker Oats Co., Cedar Rapids, Iowa; D. K. Milligan, Port of New York Authority, New York.

vention of Dust Explosions in Terminal Grain Elevators."

The 1950 reprint of this code includes a revised section on driers, which had the approval of the NFPA terminal elevator sub-committee.

## III. Relation of Insecticides to Dust Explosion

The Committee undertook to examine into the possible relation of inflammable materials in insecticides to dust explosions.

No progress was made on this item,

which will be kept open and followed during the coming year.

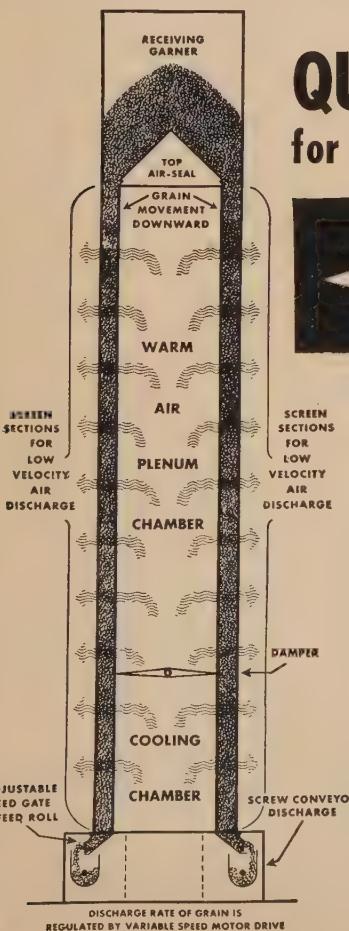
## IV. Assembly and Dissemination of Information

The committee is committed to the publicizing and passing along of any item of information, literature, motion pictures, etc., having important bearing on this and kindred subjects. Along this line two articles are made a part of this report: "Safety Precautions for Elevator Departments" follows. "Facility Fire Brigade" was printed in the Nov. 1949 issue of GRAIN.

## Safety Precautions for Elevator Department

The unloading and handling of grain in the Elevator Department requires the use of several different types of equipment. Some of the equipment is heavy and powerfully driven. Careless and improper procedures can cause serious accidents, fire, property damage.

Because of the existing hazards in



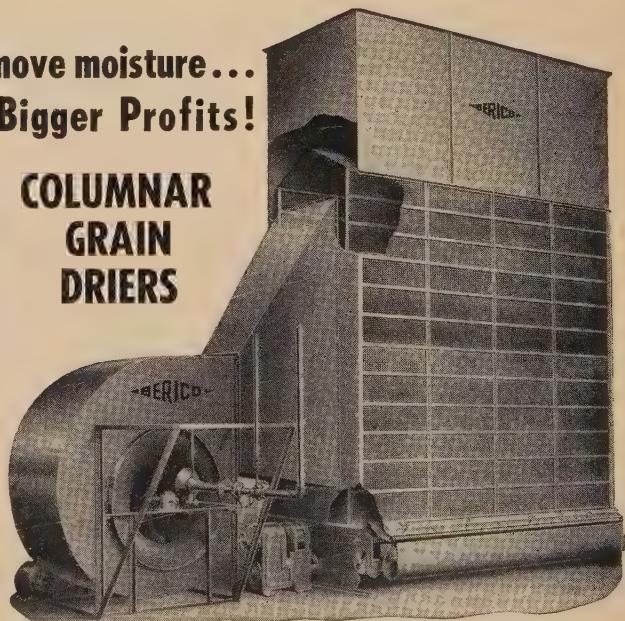
## QUALITY-built to remove moisture... for Better Quality and Bigger Profits!



### COLUMNAR GRAIN DRIERS

End-view cross-section shows extreme simplicity of design that makes BERICO Columnar Driers so highly efficient . . . the grain is constantly subjected to tremendous quantities of low-temperature air while passing from hopper to discharge outlet.

Automatic thermostatic controls (Underwriter-approved); factory pre-fabricated; sturdy construction; quality materials and equipment for lowest operating and maintenance cost.



BERICO Drier, shown without cooler fan and fan enclosure. Special high carbon steel woven wire screens, forming 4 sides of dual, free-flowing columns, permit passage of tremendous quantities of low-temperature air through slowly moving mass of grain. Sizes for every capacity-need. Operate with Natural Gas, Oil, Butane or Propane.

**H. M. SHANZER CO.**  
DRIERS • CONVEYING MACHINERY • ELEVATORS  
85 BLUXOME STREET • SAN FRANCISCO 7 • CALIFORNIA

the elevators, it is necessary that everyone be careful and alert to operate in a manner which will not only assure his own safety but also the safety of the other workers.

We have assembled a number of known hazards and have given instructions that should help avoid accidents. The precautions have been compiled carefully by a committee of elevator workers and supervisors whose experience covers many years of operation.

Each supervisor is qualified and anxious to give advice or a suggestion in any situation which may arise and should be consulted before doing anything in a manner which is not recognized as safe and practical.

Skilled mechanics are available for repair work and construction. Make-shift equipment and repairs should be avoided or corrected in a proper manner as soon as possible. Inform your supervisor at once if emergency repair is needed.

Our company has demonstrated its willingness to provide, even at considerable expense, the necessary safeguards, tools, and protective devices that will make your work safer, however, if anything appears to have been overlooked along these lines, your supervisor will appreciate any practical suggestions for improvement. Furthermore, if any additional items of precaution that any one believes worthy of listing are noticed, they should be called to the attention of supervision. The fact that an item has been omitted should not mean that common sense rules of safe conduct and caution should be ignored.

It is the duty of every worker in

the elevator department to study fully the safety instructions which follow and to use this information as it may apply to the job at hand.

Evidence of repeated disregard for safety precaution as outlined in this instruction may be considered as just cause for dismissal.

### Fire

Fire extinguishers of the proper type to use on electrical fires are located near all electric motors.

The fumes from using such an extinguisher on a fire will sometimes cause nausea and vomiting of anyone present unless there is plenty of fresh air available. Care should therefore be taken in closed places after using this type of extinguisher.

Do not use water on an electrical fire.

The Corn Drying operation is a place where every care must be taken to prevent fire. Use extreme caution in lighting fire in furnace. *One person alone should never attempt to light up a drier furnace.*

*A fire alarm must be turned in when there is a fire regardless of size.*

This does not mean that a smoking bearing would necessarily require turning in an alarm.

Do not smoke in questionable or restricted areas.

Keep litters picked up and waste cans emptied daily.

### Switching and Car Dumpers

1. When switching grain onto the dumps for unloading, the Engineer will not move his engine without receiving the signal and then only by persons who are authorized to do so. Engineer

will never move cars to the dumps on a green light alone.

2. The regular switchman when leaving the job to be relieved by another person will be required to so advise the Engineer.
3. Never move a car with any object protruding from door or car.
4. When necessary for oiler to service the dump during operations, he will be required to notify the dump foreman who will furnish protection and be sure the derails are on the track.
5. When crossing tracks past the end of cars or engines always allow plenty of room between car and yourself in case cars are bumped. Never walk between two cars that are separated by only a foot or two. Take a little more time and go around, and you will not be crushed between the couplings. Allow 15 feet between yourself and the car.
6. Never carry grain doors in such a manner as to interfere with your view.
7. Never climb through or under a line of cars.
8. Engineer should blow whistle 2 full blasts before moving toward dump.
9. Dump operators are required to know where each other is at all times. If in doubt do not make a move that could possibly trap the other operators.
10. Pit man must not stand under a car when it is being dumped. A cable could break and drop the car in the pit.
11. Qualified men only are allowed in the power room at the dump.
12. When cabling doors open or close the employees are to stand clear. This should make safe in case a cable lashes out.

### Entering Bins for Cleaning

When bins are being cleaned from the bottoms there must be a light over the opening at the top. This will prevent setting a tripper and dropping grain on anyone in the bins.

When entering a grain bin from the top regardless of how much grain is in the bin there must be two men together. One will go into the bin using a harness and rope and the other will handle the rope. This is to guard against the possibility of someone starting to pull from a bin which had someone working in it and being unable to escape the downward draw.

The use of harness when entering a bin will make it possible to remove a person who might be overcome by bad air without the necessity of another person entering the bin.

### Conveyor Belts

In the operation of bridges and bin floors it is sometimes necessary

**Screw Conveyor Corporation**  
707 HOFFMAN ST.  
ENGINEERS  
HAMMOND, IND.  
MANUFACTURERS  
TRADE MARK REG.  
PRODUCTS  
U. S. PAT. OFFICE

for operators to cross these belts when they are down for different reasons and there is always some danger involved.

There is never any reason to go through or skip over a running conveyor belt and anyone found taking such chances will be required to show reason why he should not be dismissed.

Not everyone is allowed to start machinery and it will be necessary to have special permission from the Supervisor before any person other than the regular operator may start equipment.

When belts have been down and it becomes necessary to start them and it is not possible to see the entire unit, it will be the practice to start the unit just enough to move it and then wait a few seconds to permit anyone cleaning in close to get clear.

### Compressed Air

Compressed air can be very dangerous. Do not direct into eyes or ears, or against skin. Be very careful when it is used to blow off clothing, etc. Wear goggles when blowing machinery, motors, and large areas. Do not play with compressed air. Fatal injuries have resulted from horseplay with air.

Even as a gesture of courtesy do not try to blow someone else's clothes.

The application of compressed air

inside the body is likely to result fatally. Death from this cause is considered manslaughter and may carry a penitentiary sentence.

### Compressed Gases

Cylinders should not be dropped or allowed to fall over or be subjected to undue heat, such as near a radiator. There have been instances of explosion under such circumstances.

### Electrical Equipment

Do not operate switches, etc., while standing on wet floors or when hands are wet. Any irregularity should be reported to your supervisor, who will have electrician make necessary repairs. Do not meddle with insides of switches, controls or other electrical apparatus.

Never throw in a disconnect switch when the starting unit is in the "ON" position. This will cause an explosion.

Do not blow a running motor. Shut it down first.

### D. D. T.

Do not use D.D.T. until you have been fully equipped by the personnel manager's office and have the approval of the laboratory.

When handling D.D.T., wear rubber gloves and do not allow spray to soak into your clothing or shoes. Use goggles and respirator.

### General Safety

1. Loose or torn clothing must not be worn around running machinery.
2. The use of stick belt dressing in some of the unheated areas is often necessary. Its use is hazardous and must be made cautiously. Do not treat a belt running toward the pulley. Treat the side running from the pulley and never put dressing directly on the pulley.
3. When riding manlifts you must face the belt and hold the handle. Do not carry any item on the manlift if it is too large to put into your pocket.
4. Do not climb on any unsteady objects. Use ladders when you cannot do your work from the floor.
5. Never stand on the lid of a screw conveyor. The lid could tilt and drop your foot into the worm and cut it off.
6. Keep your fingers out of places where moving machinery operates.
7. Do not put your hands in elevator boots unless the switch is pulled and a "Don't start" sign is on the starter.
8. In operating the "Tag" Moisture Tester, be sure not to let your fingers get caught in the rollers. If the rolls jam, use a stick to

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Imagine a grain shovel 28" by 32" made of metal, yet weighing only 19½ lbs. That's what you get in magnesium—the new lightweight miracle metal. MAGCOA Grain Shovels will save you money over a period of time because of their greater resistance to wear and greater handling efficiency.

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- 9 models to fit all conditions (furnished without handles or hooks)

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**The Greatest  
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**The secret is CONTROL**

CONTROL of calibrations by built-in correlator dial gives direct moisture percentage readings...no charts required.

CONTROL of temperature readings permits the quick testing of frozen, hot or kiln dried samples.

CONTROL of sample volume gives test after test consistency with greater accuracy.

CONTROL of electrical supply eliminates inaccuracies due to variations in line voltage.

Can be used for testing grain, feed, seed and other products. Makes complete test in less than one minute. Rugged, reliable, no maintenance. Precision-built by Sheldrick. Do your moisture testing the modern way. Write today for literature and liberal FREE trial offer.

**BURROWS  
EQUIPMENT COMPANY**

1316-0 Sherman Ave.

Evanston, Illinois

free them. Do not use your fingers on any metal object.

- Do not spit on floors or the equipment.
- Oilers should keep grease and oil off the floors.
- Cross the railroad tracks carefully, especially when on the payloader.
- Always keep one bottom door in the east side of cob cars you are unloading with the payloader to prevent going into the pit.

Many accidents result from an unsafe attempt to "save time" by taking short cuts, jumping off or over things, jumping for the manlift, etc. Such things do not pay in the long run, so think first and then do it the SAFE way.

#### TOE FRACTURED

"Trucker placing dockplate between freight car and warehouse dock dropped heavy plate and it bounced on foot, fracturing toe." Correction: Freight handlers were ordered to get help or use power truck for placing dockplates and were asked to wear safety shoes for foot protection."

Similar accidents have occurred on our properties, but we were not furnished the details. Clip the above, as an example of what we want to have from you, regarding serious or unusual accidents.

# Service and Equipment

## BURROWS CATALOG HAS ADDITIONAL PAGES

The big, new Burrows Equipment Company catalog, just off the press, is impressive, not only because of its size, but also because it makes available a complete source of supply for all types of approved grain, seed and feed testing and handling equipment.

The volume is ingeniously compiled for easy reference and convenience in ordering and many pages are devoted to helpful data pertaining to the installation and care of equipment, grain grading, testing, etc.

A copy of the catalog may be had by addressing the Burrows Equipment Company, 1316-O Sherman Avenue, Evanston, Ill.

## COMBINATION FEED MACHINE

A versatile combination of the Davis-built roller mill and a scalper-grader unit has now been developed. This machine combines a standard size Davis Scalper-Grader with the Davis "Krimper-Kracker" Roller Mill in any size desired. It crimps or cracks all grains—oats, wheat, barley, shelled

corn, maize, etc. The mill is equally efficient for volume production of the three crumbles, for baby chicks, growing birds and layers, now so popular in poultry feeds.

The Scalper-Grader cleans the crumbles, eliminating fines and dust. Its frame is of extremely heavy construction, to support roller mill and motor mounted on top. Super-duty roller bearings cut out friction and vibration. Power cost is only 1/5 of the amount required for grinding or pulverizing.

This Davis unit is available with roller mill production capacities ranging from 400 lbs. to 14,000 lbs. hourly grain crimping capacity; 2000 to 28,000 lbs. hourly crumbles output. Roll sizes from 6" x 18" to 10" x 42", 1/2 h.p. to 20 h.p. motors.

Complete information on all models of the Krimper-Kracker, or the Davis Crumble-Scalper-Grader are available from H. C. Davis Sons' Mill Machinery Co., Bonner Springs, Kansas.

## KELLY DUPLEX EQUIPMENT STEPS UP EFFICIENCY

"More managers of feed mills and elevators seem to be making a careful study of what it costs to operate and maintain their grinding and mixing equipment at peak efficiency," says H. W. Wise, President of The Duplex Mill and Manufacturing Company, Springfield, Ohio. He adds: "Evidence of this is shown in the mail we receive from operators all over the country. They give us facts and figures to prove how they have been able to increase their capacity and improve their profit picture after modernizing their plant with the installation of new machinery."

As an example of what he refers to, Mr. Wise tells about an installation of Kelly Duplex Hammermill with Corn Crusher and Feed Regulator which his company made for the Troy Grain and Supply Association in Troy, Ohio. "In the past 25 years of business," he said, "the firm kept a record of costs on all types of equipment they were operating. About 2 years ago, they decided to put in new Kelly Duplex machines.

"It's very gratifying to get a letter now from the manager advising that the new machines have already paid

Fire and Dust Proof Removable Section

# ELEVATORS

ELEVATOR CASINGS

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THE "MILWAUKEE" CYCLONE DUST COLLECTOR  
COMPLETE ELEVATING AND CONVEYING SYSTEMS

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1316 W. CERMAK ROAD

for themselves in fast, trouble-free operation. We think it's a good indication of the result which advanced engineering and specialized study in this field have brought about."

The Duplex Mill and Manufacturing Company has been building machinery for feed mills and elevators during the past 65 years. Literature and specifications on any or all of the Kelly Duplex machines is available and can be had by writing direct to the manufacturer.

### DEVICE TO SOLVE BIN FEED PROBLEM

What is claimed to be a solution to the problem of feeding stubborn materials through bins and hoppers is provided by the PneuBin, pneumatic device now manufactured by the Gerotor May Corporation.

The unique PneuBin principle, pioneered by the late U. G. Tainton, has been perfected by Gerotor May engineers in conjunction with technical men of the B. F. Goodrich and Tainton companies.

Pulsating PneuBin panels, strategically mounted on the inside walls of bins or hoppers, keep materials moving by positive displacement, thus preventing arching, funneling and tunneling. Flexible covers for the panels are made of reinforced, highly abrasion-resistant Goodrich Armorite

rubber. Air flow to and from the panels is automatically regulated by the Pneu Bin "Pulsatrol" unit, permitting selection of a wide range of

extrusions, easy installation, quiet vibrationless operation, maximum safety and economy. Use of the PneuBin permits closed bin tops and bin

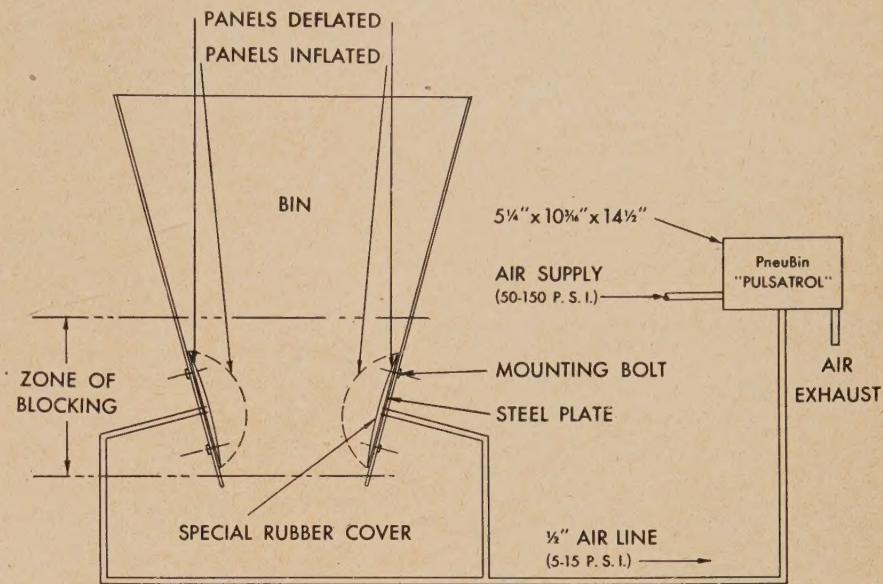


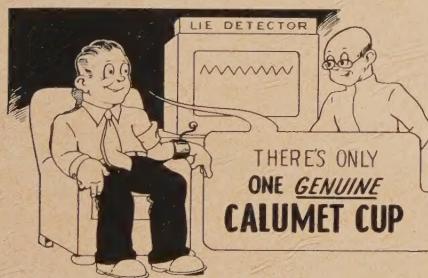
Diagram showing arrangement and operation of PneuBin

pulsation frequency, force and amplitude.

Special advantages of the PneuBin are asserted to be direct action on bin contents rather than the bin, positive

storage of materials previously considered impossible to feed from bins.

Applicable to all types of bins and hoppers, the PneuBin is claimed to assure a dependable flow of even the



... and that's the plain unvarnished truth! Calumet's patented Logarithmic Curve design has never been successfully imitated. Its performance has never been duplicated.

Because this is **provable** true  
**MORE THAN 3,500,000 CALUMET CUPS HAVE BEEN INSTALLED IN ELEVATORS THROUGHOUT THE WORLD . . .**

*Not Including Canada*

Remember, there's **only one** genuine High Speed Calumet Super Capacity Elevator Cup . . . just one cup that provides Calumet's peerless performance.

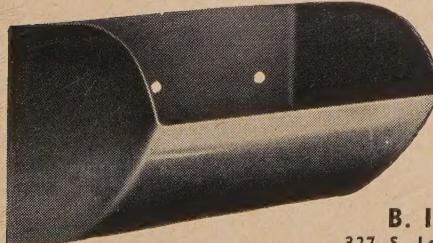
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Your Jobber*

Or write for literature and capacity data.

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Thirty-six Years of Service to the  
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**SAFE, SURE FUMIGATION**  
with  
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TRADE MARK  
**WEEVIL KILLER**  
REGISTERED

#### THE 4-WAY GRAIN FUMIGANT

Tetrafume kills all forms of insects, whether eggs, larvae or adults! Leaves no odor, taste or stain on grain or sacking.

#### 4-WAY PROTECTION . . .

(1) Tetrafume kills weevils and other insects in grain. (2) Removes musty or ground odors. (3) Lowers temperature of the grain, cuts danger of heat damage. (4) Retards damage from high moisture content.

#### Does Not Burn or Explode . . .

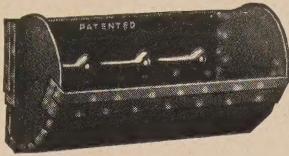
Tetrafume is safe and easy to use. It is sprinkled directly on the grain and releases a heavy gas which slowly settles through the grain, giving complete penetration. Safe to handle. Non-poisonous. See your Douglas salesman—or write direct.



**FREE  
BOOK**

Fully explains how to protect your grain from damage by insects, heat, moisture, odors, rats and mice. Write today.

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**THE FACT STILL  
REMAINS  
THAT  
SUPERIOR ELEVATOR  
CUPS  
ARE  
MADE STRONGER  
WILL  
LAST LONGER  
HAVE  
GREATER CAPACITY**

and will operate more efficiently at less cost than other elevator cups.

**"DP" - "OK"  
"CC" - "V"**

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**K. I. WILLIS  
CORPORATION  
MOLINE, ILLINOIS**

for names of distributors and analysis form No. 20

most difficult materials. Complete information on the PneuBin can be obtained from the Gerotor May Corporation, Dept. E, Baltimore 3, Md.

**CREDIT FOR BARLEY  
AND MALT QUESTIONS**

We are advised by Allan E. Beach, Exec. Secy., Master Brewers Assn. of America that the questions and answers on barley and malt used in the round table discussion at Minneapolis and published recently were taken directly from "The Practical Brewer," a book copyrighted by the association.

No credit was given for same and we hasten to rectify this by giving it now. The origin of these questions was unknown to us and we were merely reporting what had transpired at

a convention. We feel sure, also, that the use of these questions, without attributing their source, was entirely inadvertent at the convention.

**IN THE HOPPER**

Man is the only animal who blushes—or needs to.

*Office boy (on phone)—My grandmother died suddenly last night.  
Boss—Well, well, that's too bad. Who's pitching today?*

"Dear John," wrote the wife from a fashionable resort. "I enclose the hotel bill."

"Dear Mary," he answered, "I enclose check to cover the bill. But please don't buy any more hotels at this figure; they are cheating you."

*In a discussion of women's styles on a quiz show an elderly man was one of the contestants. He was asked: "I suppose you are old enough to remember wasp waists?"*

"Remember 'em," he exclaimed bitterly, "That's when I got stung."

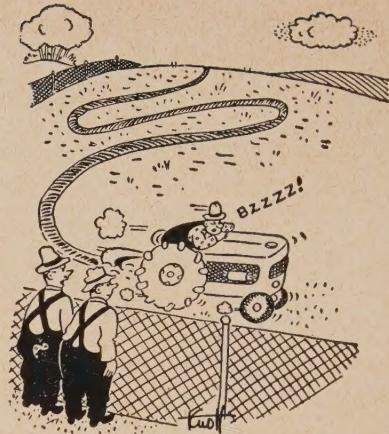
A peasant had four sons. Three were celebrities in Russia—a writer, a scientist, and an engineer. "You must be very proud and happy," a friend said to the old man, "with three successful sons."

"Oh, but consider the fourth," the peasant replied. "He lives in the United States. He's unemployed."

"Oh, dear," the friend commiserated, "how sad, how terrible!"

"What do you mean?" cried the peasant. "There's nothing terrible about it. Without his help I'd have starved to death long ago!"

*Lauritz Melchior's severest test in his early years came while he was singing for pay at a funeral. He had decided to sing a song by Grieg ending "the angel touched your forehead with a palm leaf," a lyric which sent a wave of titters thru the lines of mourners. The deceased, Melchior later discovered, had made his exit*



*"I'm afraid Baxter's late hours are beginning to affect his work."*

from this vale after a companion had touched his forehead with a beer bottle.

"Will your wife hit the ceiling when you come in this late?"

"Probably. She's a rotten shot."

*"What's Mabel mad about?"  
"She stepped on one of those scales with a loud speaker and it called out, 'One at a time, please!'"*

A clever young girl from St. Paul Wore a newspaper dress to a ball  
The dress it caught fire  
And burned her entire  
Front page, sports section and all.

*"What's your cat's name, little boy?"  
"Ben Hur."*

*"How come you gave him an unusual name like that?"*

*"Well, first we called him Ben—and then he had kittens."*

**CLASSIFIED**

**POSITION WANTED:** Former terminal elevator superintendent with 25 years experience in the handling of every kind of grain. Expert in cleaning, drying, mixing and storing operations. Has set up many cleaning units, and is specialist in making malting barley. Will furnish references. Address: 5G50, c/o GRAIN, 327 S. La Salle St., Chicago (4), Ill.

**SUPERINTENDENT WANTED**—For elevator located in Central Illinois. Must be experienced in drying and blending corn, know machinery, and able to handle men. Excellent opportunity for advancement. Give full details in first letter. Address 6G50, c/o GRAIN, 327 S. La Salle St., Chicago (4), Ill.

**SITUATION WANTED**—By elevator superintendent, familiar with all operations; drying, cleaning, mixing, and thoroughly versed in the handling and mixing of feeds. University of Illinois, School of Agriculture graduate. Eleven years experience as elevator superintendent. Address: 6G50A, c/o GRAIN, 327 S. La Salle St., Chicago (4) Ill.

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## SIGNODE GRAIN DOORS

*"easier to unload!"*

**SAYS AL HALBERG**

*Pillsbury Mills, Springfield, Illinois*

"We have unloaded 750 cars of grain which were protected by Signode Grain Doors . . . and we are very much pleased with them. Our men prefer Signode Grain Doors because they are safer and much easier to open."

**right! Mr. Halberg...**

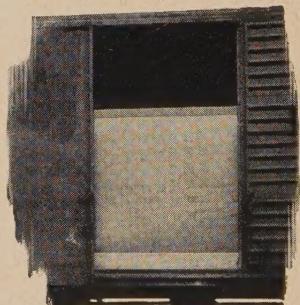
When you use car dumpers, Signode Grain Doors stay in the car; no danger of clogging pit; nothing to handle. With manual unloading, they are quickly severed at car doorpost — beginning at top and continuing progressively to bottom — permitting controlled flow of grain at rate that won't choke boot. When doorway is clear, expended grain door is folded back safely out of way. NO HANDLING OF HEAVY, NAIL-STUDDED DOORS IN AND OUT OF CAR.

The Signode Grain Door is a *one-piece* door. You need handle only *one* of these doors (weight 14 lbs.) for every *six* wood doors (combined weight 360 lbs.)! They give *positive protection* because pressure of load seals sides and bottom flap.

For further information, write



Made of strong Signode steel strapping, scientifically spaced between laminations of heavy duty, water-repellent kraft liner board, Signode Grain Doors (A. A. R. approved) are supplied in 6 ft. heights.



THIS SEAL MEANS

**SIGNODE**

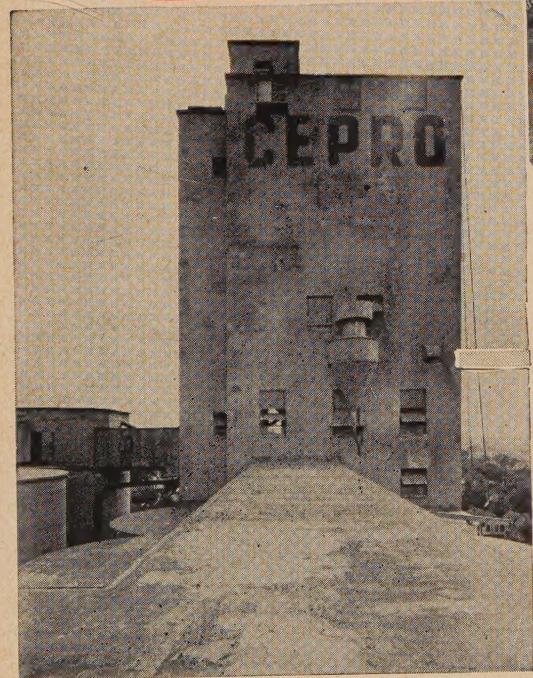
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**SIGNODE STEEL STRAPPING CO.**

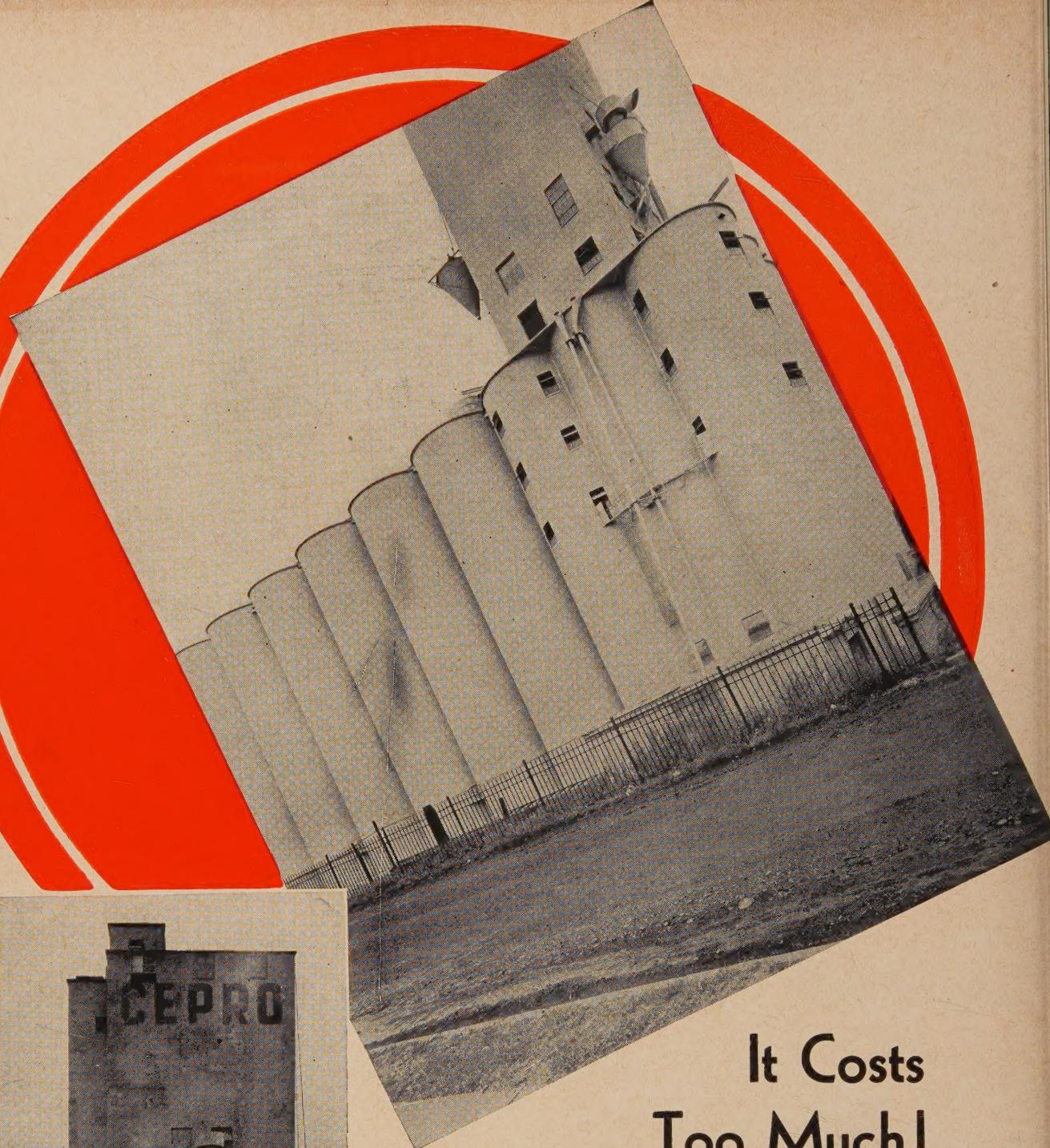
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**Y**OU, Too, Will Find That Protecting Your Investment Is Especially Wise, Particularly When You Can Depend So Completely Upon . . .

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